

ESH100: Environment, Safety & Health Awareness Training



Sandia National Laboratories

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Introduction

Sandia's Environment, Safety & Health Awareness Training (ESH100) informs you of your ES&H responsibilities and enables you to locate the resources you need to carry out your responsibilities. It also promotes a better understanding of Sandia's Integrated Safety Management System (ISMS). Finally, it provides general information on various ES&H topics and concerns that apply to people who work at Sandia.

The ES&H management team is continually striving to improve safety and safe behaviors at Sandia. If you have anything you would like to suggest to improve safety at Sandia, including alerting us to near misses or situations in which significant injury or other consequence was narrowly averted, please send your comments to Al Bendure or Heidi Herrera. This team reads every feedback comment and will respond if a response is requested. Please be sure to also add your comments about the course in the end of course evaluation.

Throughout ESH100 there are numerous links to additional guidance, checklists, and websites you may want to bookmark for future reference. These links are also available in one document from the ESH100 course description in TEDS Everyone.



Course Credit

ESH100 was designed to be completed on-line.

To receive ESH100 completion credit, you must prove you have mastered the required material by answering end-of-course questions with 80% accuracy.

Completion Time:

Course completion times will vary depending upon each individual. The course completion time is estimated to be **less than 30 minutes**.

If someone cannot access ESH100 online:

If someone doesn't have access to Sandia's web, a PDF version of ESH100 may be obtained from their Training Coordinator or the ESH100 course manager, Lei Wathen.

Instructions on how to receive credit using the printed version are included in the PDF file.

Timecard Charges:

Employees may charge up to 30 minutes to TRC (time reporting code) Project 10000 Task 290 for the time spent taking ES&H Awareness Training (ESH100).

ESH100 Contacts

ES&H Questions & Concerns

Contact the following individuals or teams if you have any ES&H questions or concerns.

- ES&H Direct Access Services List
- SNL/CA ES&H Interdisciplinary Team (IDT)
- OOPS Reporting Guide (ES&H Coordinators & Teams)
- Standing ES&H Committees

ESH100 References

Corporate Business Rules:

- Corporate Policy: ESH100, Environment, Safety & Health

Forms:

- ES&H Forms

Module 1: Your Sandia ES&H Rights & Responsibilities

Objective

Upon completion of this module, you will be able to identify your ES&H Rights and Responsibilities.

Environment, Safety & Health (ES&H) Rights and Responsibilities

It is important that you have a clear understanding of your ES&H rights and responsibilities before you begin work - for your safety, the safety of others, and the protection of the environment. Understanding your ES&H rights and responsibilities, and how to integrate ES&H into your work activities/tasks will help you to enjoy a safe career at Sandia.

What are your authorities and obligations?

You have the authority and obligation to:

- refrain from participating in operations that are unsafe; and question, suspend, and
- report operations you believe to be unsafe, noncompliant, or damaging to the environment.

What are your responsibilities?

You are responsible for knowing and understanding the scope of the work you perform, the hazards of that work, how you could be exposed to the hazards, the symptoms of exposure, how to protect yourself and others from exposure and how your activities/tasks may affect the work and safety of others and the environment. Your responsibilities include:

- being aware of your surroundings, and all associated hazards;
- practicing and promoting safe behaviors and work practices, and using good judgment;
- planning and executing work with a questioning attitude;
- following procedures;
- refraining from entering areas where ES&H hazards exist (or could exist) unless under suitable escort (if allowed); or trained and qualified to enter;
- obeying signs and barriers;
- refraining from performing any activity/task involving ES&H hazards until the applicable ES&H training has been completed and you are authorized to perform the activity/task;
- promptly reporting ALL accidents, injuries, and ES&H concerns to your Sandia supervisor (or point of contact);
- knowing and following the emergency procedures applicable to your work and locations (site, building, office, lab); and
- constantly striving to improve your own, and Sandia's, ES&H performance.





Be a Safety Star!

You have the right to know the hazards associated with your work and work location(s). Although your supervisor is responsible for providing you with this information, you are responsible for knowing, understanding, and applying the information, and taking the necessary steps to protect yourself, those around you, and the environment. You have the right to a safe and healthful workplace - IT'S THE LAW (10CFR851 - Worker Safety and Health Program).

What are the benefits of fulfilling your ES&H responsibilities and working safely?

The benefits of carrying out your ES&H responsibilities include:

- going home uninjured;
- the safety of my co-workers;
- meeting customer requirements;
- saving money, resources, and energy;
- reducing the likelihood of exposure to hazards in the workplace;
- improving the work environment;
- reducing or eliminating adverse impacts on the environment; and, reducing project costs.

Working without fulfilling your ES&H responsibilities can:

- cause serious injury to yourself and/or others;
- endanger lives;
- damage equipment and/or the environment;
- damage Sandia's reputation;
- cause the loss or disruption of Sandia's capability to execute its mission; and
- result in disciplinary action (up to termination of employment).



Be a Safety Star!

ES&H is not an additional job duty - it is an integral part of your job and the right thing to do! It is every person's responsibility and is Sandia's way of doing business.

Module 2: Sandia Environment Safety & Health (ES&H) Program and Integrated Safety Management System (ISMS)

Objective

Upon completion of this module, you will be able to recognize Sandia's ES&H policies, principles, and objectives, and identify the components of the Sandia Integrated Safety Management System.

Sandia's ES&H Program promotes a safe work environment for current and future generations of members of the workforce and Sandia's neighbors.

What is Sandia's ES&H Policy?

It is the policy of Sandia Corporation to protect Members of the Workforce and the public, prevent incidents, protect the environment through integration of environmental stewardship and sustainability throughout the life-cycle of its activities, and ensure regulatory compliance. Sandia Corporation conserves natural resources and protects the environment.

What are Sandia's ES&H Principles?

- All personnel are responsible and accountable for safety
- All workers and visitors are responsible for conducting themselves safely

Regardless of what type(s) of work activities you perform and/or where you perform them, incorporating ES&H into all you do is the way to reduce the risks inherent to your work.

DOE's Integrated Safety Management

DOE's Integrated Safety Management System (ISMS) provides the framework for managing ES&H activities and functions while integrating them into all SNL operations. ISMS:

- ensures that line organizations are responsible for safety and protecting the environment;
- integrates existing and new ES&H processes and procedures into an executable system; and
- increases consistency of ES&H implementation at Sandia, while allowing individual organizations to tailor the specific details to meet their needs.

Integrated Safety Management System

Integrated Safety Management System (ISMS) consists of the following five steps or "management functions":

1. **Define the scope of the work** to be done.
2. **Analyze** all **hazards** associated with the work.
3. **Control** the **hazards** identified.
4. **Perform the work.**
5. **Provide feedback** and make necessary improvements.



When you are planning and conducting work activities/tasks at Sandia, take into account each of the five ISMS functions to ensure that you perform the work in a safe and compliant manner. For a complete list of things to do to integrate safety into your daily work, download the ISMS Checklist by clicking on the button below.

ISMS Checklist

The activity-level Work Planning and Control (WP&C) process aligns with the Integrated Laboratory Management System (ILMS) corporate work process (CWP) and is described in terms of the five ISMS core management functions. The goal is safe, efficient, and reliable conduct of work in support of Sandia missions (ESH100.1.WPC.1 - Plan & Control Work). Click on the Work Planning & Control button below for an interactive overview of the WP&C process.

Work Planning and Control (WP&C)



Before planning work, Sandia personnel should refer to their organization-specific work planning and control implementation plans.

Note

Several software applications are available to help you plan and safely do work. Check out and bookmark the ES&H/EM 411 TOOLSET link for future reference to help plan and safely do your work.



Module 3: Emergency!

Objective

Upon completion of this module, you will be able to define your responsibilities and identify your actions in responding to an emergency.

What is an emergency?

An emergency is an unplanned event, condition, or incident that poses imminent danger to life, health, environment, safety, or security, and requires time-urgent actions from trained response personnel.

An emergency may have already caused loss of life, health detriments, property damage or environmental damage, and/or has a high probability of escalating to cause immediate danger to life, health, property or the environment.



Be a Safety Star!

When in doubt - treat it as an emergency!

What should you do in the event of a medical emergency?

- If you are the first person to come upon the scene of a medical emergency, assess the situation and then call in the emergency (Download a copy of the Emergency Numbers).
- Send someone to meet the Medical crew at the building front entrance and lead them to the injured person if possible.
- Call out to others who are in the area for their safety (if applicable).

Emergency Numbers

Location	Phone
SNL/NM (on KAFB)	911 or 505-844-0911 (cellular)
SNL/CA	911 or 925-294-2222 (cellular)
TTR	911 (Security: 702-295-8282)
KTF	808-335-5611 or 0 (emergency) 9-335-4333 (fire) or

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	9-335-4523 (bomb threat)
Pantex	3333 or 5000 (Emergency Operations Center: 477-5000)
WIPP	595-234-8111
Carlsbad	911
Other	911

EVERY electrical shock is a medical emergency so call 911 or the site emergency number for these incidents!



What should you do in the event of other types of emergencies?

CALL 911 or the site emergency number.

For guidance on other types of emergencies such as hazardous material spills, confined space rescue, vehicle accidents, unusual odor, fires, and so on:

- Download additional guidance for these types of emergencies by clicking on the "Emergency Response Checklist" button below and then save this checklist for future reference.

Emergency Response Checklist

Remember - The health and safety of personnel take precedence over the need to shut down equipment or secure classified matter!

Emergency Notifications (Protective Actions)

Sandia's emergency response program often uses Protective Actions to preserve the health and safety of Members of the Workforce, the public and emergency responders during incidents that require significant response. Specific Protective Actions that you may be asked to perform include:

- Shelter in Place (Remain inside until the danger has passed, shut doors and windows, and keep away from windows); or
- Evacuate (Move to a safer location).
- Active Shooter - Evacuate, hide out or take action as a last resort

At SNL/NM, you will receive protective action messages from the Emergency Operations Center (EOC) over the Tone Alert Radio (TAR) system, by verbal notification from the building evacuation team, or by activated fire alarm bells.

At SNL/CA, the Central Alarm System will provide appropriate direction over the Tone Alert Radio system, by verbal notification from the building evacuation team, or by activated fire alarm bells.

When an Active Shooter incident has been reported, a Tone Alert Receiver (TAR) announcement will be sent to all Sandia TAR's in an attempt to notify as many Member's of the Workforce as possible.

Once you hear an Active Shooter message do NOT call 911 or 311 for more information. Only call if you have pertinent information about this incident or another emergency. Do not activate fire alarm pull stations to initiate evacuation for an Active Shooter incident. Follow the below guidelines on How to Respond When an Active Shooter Is In Your Vicinity.

- **Evacuate** - If there is an accessible escape path, attempt to evacuate the premises.
- **Hide out** - If evacuation is not possible; find a place to hide where the active shooter is less likely to find you.
- **Take action** against the active shooter. As a last resort, and only when your life is in imminent danger, attempt to disrupt and/or incapacitate the active shooter.

Important things to remember when an active shooter is in your vicinity:

- If you are on the phone when Security and Law Enforcement approach, follow their instructions and **put the phone down "DO NOT HANG UP,"** raise hands keeping them visible with fingers spread and get on the floor (unless directed otherwise)
- The assailant may bang on the door, yell for help, or otherwise attempt to entice you to open the door of a secured area. **DO NOT OPEN THE DOOR FOR ANYONE.** Security or Law Enforcement will be able to get in the area without you giving them access, **WHEN IN DOUBT CALL 911** to verify it is Security or Law Enforcement attempting to gain access 911 personnel may direct you to open the door.
- Whether you evacuated or hid out in the building be prepared for the incident scene investigation. When safe to do so or released by Law Enforcement, contact your manager and report your status.

The U.S. Department of Homeland Security developed an excellent pamphlet with guidance on how to respond to an Active Shooter incident. Download the Active Shooter - How To Respond pamphlet for your information. You can also download a copy of their Active Shooter Pocket Card for your wallet. Here is a quick summary of how to respond to an active shooter in the workplace:

HOW TO RESPOND	HOW TO RESPOND
WHEN AN ACTIVE SHOOTER IS IN YOUR VICINITY	WHEN LAW ENFORCEMENT ARRIVES
1. EVACUATE	<ul style="list-style-type: none">• Remain calm and follow instructions• Put down any items in your hands (i.e., bags, jackets)• Raise hands and spread fingers• Keep hands visible at all times• Avoid quick movements toward officers such as holding on to them for safety• Avoid pointing, screaming or yelling• Do not stop to ask officers for help or direction when evacuating
2. HIDE OUT	
<ul style="list-style-type: none">• Hide in an area out of the shooter's view• Block entry to your hiding place and lock the doors• Silence your cell phone and/or pager	
3. TAKE ACTION	
<ul style="list-style-type: none">• As a last resort and only when your life is in imminent danger• Attempt to incapacitate the shooter• Act with physical aggression and throw items at the active shooter	
CALL 911 WHEN IT IS SAFE TO DO SO	INFORMATION
	YOU SHOULD PROVIDE TO LAW ENFORCEMENT OR 911 OPERATOR
	<ul style="list-style-type: none">• Location of the active shooter• Number of shooters• Physical description of shooters• Number and type of weapons held by shooters• Number of potential victims at the location

For additional emergency operations references go to the ES&H and Emergency Management Center webpage and ESH100.3.1 - Prepare for and Manage Emergencies. </p>

IMPORTANT!

If you find or encounter an unknown item or package that looks suspicious (for example: mailed from a foreign country, visible wires, powder, grease like stains, excessive postage, addressed to a specific person or title "To be opened by____," Private, wrong title with name, no return address):

- warn people in proximity;
- do NOT pick-up or attempt to move the item/package;
- move to a safe distance;
- attempt to isolate and control access to the immediate area; and



If you feel it represents an emergency situation, call 911 or the site emergency number.

Continuity of Operations

There may be times when an emergency event may extend for some time, or there may be an external event that will require Sandia to transition to a different mode of operations. These events are **continuity incidents**.

What is a continuity incident?

A continuity incident has impacts over a longer time frame and may be more pervasive than an emergency event. A continuity incident can take several forms. There could be an incident that occurs in the U.S. or the world that requires Sandia to respond, even though it does not impact Sandia directly. An example is what occurred on 9/11. There could be an incident that directly impacts Sandia. A past example of this is the Cerro Grande fire, which caused the closure of Los Alamos for a period of time. A potential future scenario might be a large earthquake in California that would impact Sandia/CA.



What are the requirements?

Sandia performs continuity planning in accordance with DOE Order 150.1, Continuity Programs and the associated contractor requirements. Continuity of Operations (COOP) planning ensures that Sandia can continue to perform certain essential functions that support DOE and NNSA missions and protect Sandia employees during a wide range of continuity incidents, including localized acts of nature, a disease epidemic/pandemic (e.g., H1N1 flu), large accident, technological, or attack-related incidents.

What are your responsibilities?

If you have been designated as Mission Critical, or have received an "Emergency Response Official" designation on your HSPD-12 badge, you may be involved in responding to a continuity incident, and may be required to take additional training. Your organization may be specifically designated as performing an essential function for DOE, and have a written Continuity of Operations plan for continuing that function during a continuity incident. Your manager will inform you directly if you have responsibilities in your organization to respond to a continuity incident.

Module 4: Fire Protection

Objective

Upon completion of this module, you will be able to recognize your responsibilities in preventing and responding to a fire.

Fire!

Fires can cause injuries, fatalities, and damage quickly and can be very difficult to control. Even a small fire can disrupt operations anywhere at Sandia. We all need to be aware of what we can do to prevent and respond to fires. Learn more about how fires start and spread.



What are your responsibilities?

To prevent fires and minimize the potential for injury or loss, click on the Fire Safety Checklist to review your responsibilities and for future reference to ensure your safety:

[Fire Safety Checklist](#)

When is it safe to fight a fire?

Only fight a fire if:

- you have been specifically trained how to use an extinguisher;
- you can do so without undue risk;
- the fire is small and in the beginning stages; and
- it only involves ordinary combustibles (e.g., paper, cardboard, cloth, or wood).

NEVER fight a fire if:

- it will jeopardize your personal safety
- the fire involves radioactive, highly toxic, or other unusually hazardous material
- the fire is in a confined space
- the fire has spread to surrounding furnishings or the building structure, or
- you need to crawl beneath the smoke layer



Remember that smoke from fires is toxic and causes most fire-related deaths.






Note

**Be a Safety Star!**

Before attempting to fight a fire, you or one of your co-workers should call 911 (or if using a cell phone at SNL/NM, 505-844-0911, or at SNL/CA, 925-294-2222) or the site emergency number from a safe location!

Not all fire extinguishers are alike!

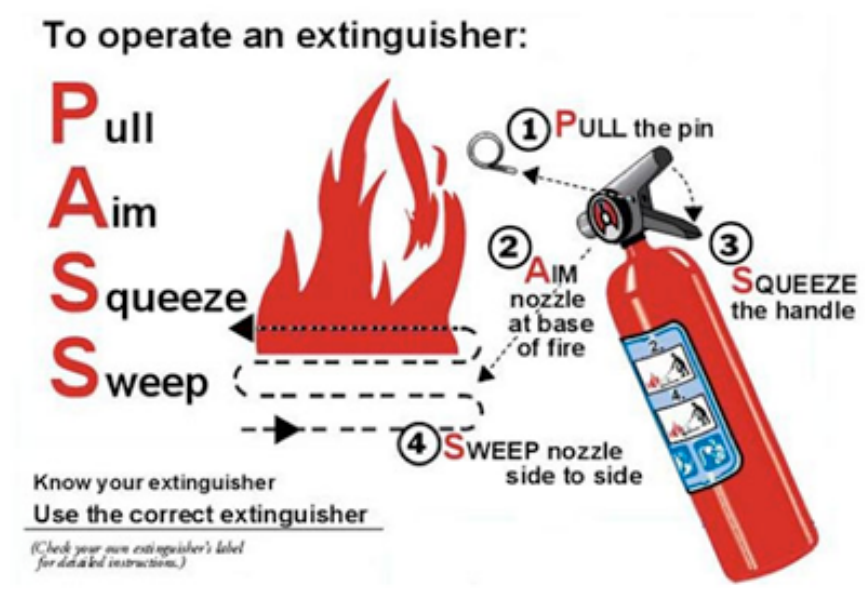
Fire extinguishers are rated and labeled for the type(s) of fires they are capable of putting out:

A 	Common Combustibles	Wood, paper, cloth, etc.
B 	Flammable liquids and gases	Gasoline, propane and solvents
C 	Live electrical equipment	Computers, fax machines
D  Combustible Metals	Combustible metals	Magnesium, lithium, titanium
K 	Cooking Media	Cooking oils and fats

At Sandia, many extinguishers are rated for multiple types of fires (e.g., ABC or BC).

How do you use a fire extinguisher?

Follow the "P.A.S.S." steps for extinguisher use:



You must take FRP106 or FRP106CA and use an appropriately rated extinguisher if your work requires you to be prepared to fight fires involving:

- flammable or combustible liquids or gases;
- electrical equipment; or
- combustible metals.

If you cannot extinguish a fire, evacuate the area. Remember to test all doors before opening. Never open a hot door!



Be a Safety Star!

Even if you take additional training, DO NOT attempt to fight a fire if it is unsafe to do so, or if it involves explosives, radioactive materials or wastes, or highly toxic materials and gases!



Important!

As soon as possible after a fire event, if you have put out a fire contact the NM Site Fire Marshal, CA Site Fire Marshal, or Site Security. Be sure to preserve the fire scene evidence for investigation by the Sandia Site.

Module 5: Electrical Safety

Objective

Upon completion of this module, you will be able to identify potential electrical hazards and your electrical safety responsibilities at Sandia.

One of the most common and potentially dangerous hazards at Sandia is electricity. Since electricity is found in nearly every activity performed at Sandia, it is also a hazard that many people take for granted. Thinking about each of your tasks will help to ensure that you do not receive an electrical shock.

What are your electrical safety responsibilities?

- Be aware of potential electrical hazards and safety practices in your work areas.
- Always assume that any wiring or electrical fixture is "hot," since many types of equipment contain hazardous levels of stored energy even when they're unplugged.
- Use only approved and properly maintained equipment (such as 3-conductor extension cords).
- Don't link extension cords together or run them through doorways, windows, or across walkways.
- Never use any electrical device with a frayed or altered cord.



Be a Safety Star!

Working on energized equipment - *exposed live components, wiring* - at Sandia is the exception and not the rule. Every attempt should be made to work de-energized.

What are common electrical safety issues at Sandia?

Several things are routinely observed that can compromise your safety. These include:

- Misuse of power strips and extension cords;
- Daisy chains (connecting power strips and/or extension cords together);
- Failure to properly plug and unplug equipment;
- Failure to use a ground fault circuit interrupters (GFCI) when required;
- Use of modified electrical equipment;
- Operation of electrical disconnects/safety switches without appropriate training and personal protective equipment.

To see more details on these common safety issues, click on the Electrical Safety Issues button below:

Electrical Safety Issues

For additional general electrical safety information, please visit Sandia's Electrical Safety Website.

Module 6: Lockout/Tagout

Objective

Upon completion of this module, you will be able to identify what lockout/tagout is and your lockout/tagout responsibilities at Sandia.

What is "Lockout/Tagout"?

"Lockout/Tagout (LOTO)" refers to specific practices and procedures **to protect individuals from the unexpected energizing or start-up of equipment and machinery, or the release of hazardous energy during servicing or maintenance activities/tasks**. It involves the use of standardized locks, appropriate lockout devices, and danger tags on energy-source-isolating devices, and prevents the use of associated equipment and machinery.

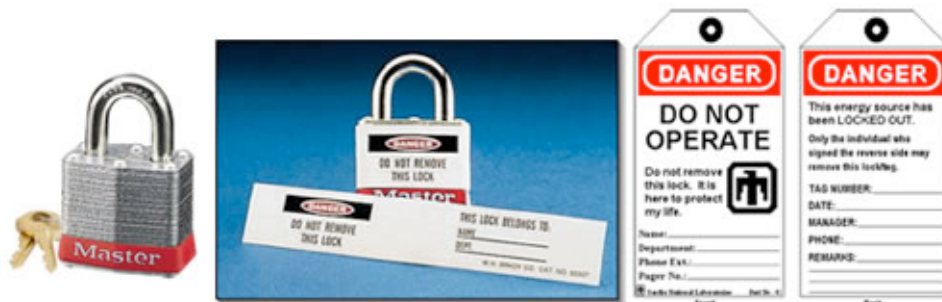


Be a Safety Star!

Each year *hundreds* of workers are injured or killed nationwide because hazardous energy sources were not properly locked out and tagged with warnings!

Lockout/Tagout materials consist of Sandia-standardized:

- Master™ lock with a **red** plastic band;
- Lock Label; and
- Danger tag.



Sandia Lockout/Tagout Materials

What are your Lockout/Tagout responsibilities?

- Do **NOT** tamper with or remove a lock or tag unless you are authorized; and
- Do **NOT** attempt to start or operate a locked- or tagged-out piece of equipment.
- Contact the lock owner, manager, or ES&H coordinator for information on a lockout/tagout.

If you are directly involved in servicing and maintenance activities/tasks which require Lockout/Tagout, you will need training in LTO210. Consult with your Sandia manager or ES&H Coordinator to see if this training applies to you.



Be a Safety Star!

If you discover a situation where an energy source is NOT locked and tagged, but has the potential for serious injury, you have the authority to suspend operations.

How do I know if I need Lockout/Tagout? Are there any exceptions?

Safety Engineering has developed a tool to help you determine if LOTO is required for your activity. In general, however, if there is a hazard that can cause injury, and you are doing anything other than operating the equipment per the manufacturer's instructions, LOTO is required for the activity.

Safety Engineering LOTO Tool

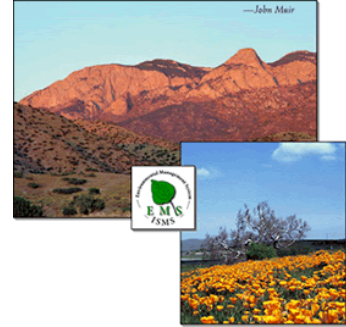
For additional information on Lockout/Tagout, please visit the LOTO website.

Module 7: Environmental Management

Objective

Upon completion of this module, you will be able to recognize your environmental management responsibilities.

Sandia is committed to integrating environmental protection with its research, development, and production missions, and recognizes the importance of protecting the environment for current and future generations. This integration is accomplished through Sandia's Environmental Management System (EMS). SNL/NM and SNL/CA are both ISO 14001 Certified to ensure a robust EMS.



The **Environmental Management System (EMS)** is a continuing cycle of planning, evaluating, implementing, and improving our work processes to achieve environmental goals. **EMS is used to manage the environmental risk of Sandia's activities/tasks, products, and services.**

You are expected to:

- know and understand the ES&H Policy; key components are protection of the environment, compliance, pollution prevention and continuous improvement.
- plan and perform your work in compliance with Sandia's environmental protection, energy efficiency, resource conservation, and pollution prevention policies and practices;
- participate in the EMS process by understanding how your work interacts with the environment; how does your work interact with the environment (aspect) and how does your work change the environment (impact).
- understand which local, state, and federal environmental regulations and other environmental contract requirements apply to your work;
- comply with Sandia's environmental management policies and procedures (ESH100.1.EP.1), including green purchasing and sustainable design;
- continually strive to minimize environmental impacts by reducing the use and waste of toxic materials; saving water and energy; and recycling, reapplying, and reusing materials;
- replace old equipment with environmentally-friendly equipment such as Energy-Star(R) rated products, low-flow plumbing products, or efficient lighting; and
- turn off lights and computers when not in use and monitoring and controlling heat-producing and exhaust equipment.

How to manage hazardous waste

To determine if waste you generate is hazardous waste, please review Manage Hazardous Waste at SNL/NM. If you generate hazardous waste you are required to take ENV112.

Consult your ES&H Team, Environmental Compliance Coordinator, and ES&H Coordinator for guidance and to find out how to manage hazardous waste correctly and effectively.

There are programs to help you understand your environmental responsibilities:

- National Environmental Policy Act
- Environmental Life-cycle Management
- Water Quality
- Air Quality
- Ecology

Your ES&H Coordinator and Environmental Compliance Coordinator can assist you.